

Appl. No. : 09/988,850
Filed : November 19, 2001

AMENDMENTS TO THE CLAIMS

1-6. (Canceled).

7. (Currently Amended) An optical-bio disc for performing a blood-typing assay, said disc configured to be rotated and said disc comprising:

a substrate;

a separation chamber in proximity to said substrate, said separation chamber including a first portion and a second portion, wherein the first portion contains a filter means and includes a first inlet port positioned at an opening of said disc such that a material delivered from a non-disc source is deposited directly on said filter means;

a first mixing chamber in direct fluid communication with said second portion of said separation chamber so as to receive material communicated directly from the separation chamber;

a second inlet port connected to the first mixing chamber and configured to communicate material received from a source other than the separation chamber to the first mixing chamber;

a second mixing chamber in direct fluid communication with said second portion of said separation chamber so as to receive material communicated directly from the separation chamber;

a third inlet port connected to the ~~first-second~~ mixing chamber and configured to communicate material received from a source other than the separation chamber to the ~~first-second~~ mixing chamber;

a first detection chamber in direct fluid communication with said first mixing chamber, said first detection chamber including a first capture field; and

a second detection chamber in direct fluid communication with said ~~first-second~~ mixing chamber, said ~~first-second~~ detection chamber including a ~~first-second~~ capture field;

wherein the disc and chambers are configured such that fluid is transmitted from at least one of the chambers to another of the chambers that is in fluid communication therewith in response to rotation of the disc.

8. (Canceled).

Appl. No. : **09/988,850**
Filed : **November 19, 2001**

9. (Canceled).
10. (Previously Presented) An optical-bio disc as defined in Claim 7, wherein the separation chamber, the first and second mixing chambers and the first and second detection chambers are formed in the substrate.
11. (Previously Presented) An optical-bio disc as defined in Claim 7, further comprising a cap that is bonded to the substrate.
12. (Previously Presented) An optical-bio disc as defined in Claim 11, wherein the separation chamber, the first and second mixing chambers and the first and second detection chambers are formed in the cap.
13. (Previously Presented) An optical-bio disc as defined in Claim 11 wherein the separation chamber, the first and second mixing chambers and the first and second detection chambers are partially formed in the cap and partially formed in the substrate such that the cap and substrate are bonded together in register to thereby fully form the chambers.
14. (Previously Presented) An optical-bio disc as defined in Claim 11 further comprising a channel layer bonded between the cap and the substrate.
15. (Previously Presented) An optical-bio disc as defined in Claim 14, wherein the separation chamber, the first and second mixing chamber and the first and second detection chambers are formed in the channel layer.
16. (Previously Presented) An optical-bio disc as defined in Claim 7, further comprising an information layer which is configured to retain encoded information, said information layer located on the disc in a configuration such that the encoded information is readable by a disc drive.
17. (Previously Presented) An optical-bio disc as defined in Claim 16, wherein the encoded information is used to define the manner in which the disc will be rotated.
18. (Previously Presented) An optical-bio disc as defined in Claim 16, wherein the information layer is reflective.
19. (Previously Presented) An optical-bio disc as defined in Claim 16, wherein the information layer is partially transmissive and partially reflective.
20. (Currently Amended) An optical-bio disc for performing a blood-typing assay, said disc configured to be rotated and said disc comprising:

a substrate;

a separation chamber having components that are at least partially supported by the substrate, said separation chamber including a first portion and a second portion, wherein the first portion includes a filter and a first inlet positioned at an opening of said disc such that a material delivered from a non-disc source is deposited directly on said filter;

a plurality of mixing chambers, each of which is separate from the other mixing chambers and each of which is in direct fluid communication with the second portion of said separation chamber so as to receive material communicated directly from the separation chamber, and each of which includes a ~~a~~an inlet port configured to communicate material into the mixing chamber from a source other than the separation chamber; and

a plurality of detection chambers, each of which is separate from the other detection chambers and each of which is in direct, fluid communication with one of the ~~mixing-chamber~~ chambers;

wherein the disc and chambers are configured such that fluid is transmitted from at least one of the chambers to another of the chambers that is in fluid communication therewith in response to rotation of the disc.

21. (Canceled).

22. (Previously Presented) An optical-bio disc as defined in Claim 20, wherein the separation chamber, the plurality of mixing chambers and the plurality of detection chambers are formed in the substrate.

23. (Previously Presented) An optical-bio disc as defined in Claim 20, wherein each of the plurality of detection chambers further comprises a capture zone.

24. (Previously Presented) An optical-bio disc as defined in Claim 20, further comprising a cap that is bonded to the substrate.

25. (Previously Presented) An optical-bio disc as defined in Claim 24, wherein the separation chamber, the plurality of mixing chambers and the plurality of detection chambers are formed in the cap.

Appl. No. : **09/988,850**
Filed : **November 19, 2001**

26. An optical-bio disc as defined in Claim 24, wherein the separation chamber, the plurality of mixing chambers and the plurality of detection chambers are partially formed in the cap and partially formed in the substrate, such that the cap and substrate are bonded together in register to thereby form the chambers.

27. (Previously Presented) An optical-bio disc as defined in Claim 24 further comprising a channel layer bonded between the cap and the substrate.

28. (Previously Presented) An optical-bio disc as defined in Claim 27, wherein the separation chamber, the plurality of mixing chambers and the plurality of detection chambers are formed in the channel layer.